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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/688,961	10/17/2000	ALAIN BETHUNE	107615	1437
25944	7590	12/01/2004		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER LORENZO, JERRY A	
			ART UNIT	PAPER NUMBER
			1734	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/688,961

Applicant(s)

BETHUNE, ALAIN

Examiner

Jerry A. Lorengo

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2004 and 15 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-13,21,22,24-26,28-47,56 and 57 is/are pending in the application.
- 4a) Of the above claim(s) 48-55 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 44 and 45 is/are allowed.
- 6) ☒ Claim(s) 1,3-10,12,21,22,24-26,28-35,37-43,46 and 47 is/are rejected.
- 7) ☒ Claim(s) 11 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

(1)

Election/Restrictions

Applicant's election with traverse of claims 1, 3-13, 21, 22, 24-26, 28-43, 56 and 57 in the reply filed on October 15, 2004 is acknowledged. The traversal is on the ground(s) that the subject matter of Species B (claims 44 and 45), C (claims 46 and 47) and D (claims 48-55) is also included in the elected claims. Upon reconsideration, the Examiner agrees that the subject matter of at least Species B and C is embodied in the elected claims; specifically claims 5, 11 30 and 36. As such, claims 44, 45, 46 and 47 have been rejoined with the elected claims for examination on the merits. The Examiner respectfully submits, however, that Species D continues to constitute a patentably distinct species of the claimed invention given its description as an alternative embodiment in the originally filed specification at page 4, lines 33-36 and page 5, lines 24-28. As such, the requirement with regards to Species D is still deemed proper and is therefore made FINAL.

(2)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 4-10, 12, 13, 21, 24-26, 29-35, 37-39, 41, 46, 47, 56 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 01-202492 to Doi et al., as set forth in section (2), above, in further view of U.S. Patent No. 4,294,641 to Reed et al.

Regarding applicant claims 1, 26 and 46 and 47, Doi et al. disclose a method of decorating a substrate comprising the steps of (Translation of Cited Reference 1):

- (1) Supplying a multilayer structure comprising, in order, a release sheet (backing), a layer of radiation curable protective resin (varnish) thereon; a decorative layer disposed thereon; and a layer of heat activated adhesive thereon;
- (2) Exposing the protective resin layer to radiation to render it half-cured and solid;
- (3) Contacting the multilayer structure with the surface of a target substrate;
- (4) Applying pressure and heat with a heated roller thereby activating the heat activated adhesive layer to bond the decorative and protective resin layers to the target substrate;
- (5) Withdrawing the release sheet; and
- (6) Exposing the transferred layers to further radiation causing the protective resin layer to fully cure whereby the transferred layers remain on the surface of the target substrate.

Although Doi et al. disclose that the protective resin layer is curable by UV radiation, they do not specifically disclose the particular chemical makeup of the resin as set forth in applicant claims 1, 4, 5, 7, 8, 26, 29, 30, 32, 33, 46 and 47. Although they disclose that the decorative layer may comprise a metallic layer, they do not specifically disclose, as per applicant claims 13 and 38, that it comprises a printed ink layer.

Reed et al., however, also drawn to a method of decorating a substrate by the thermal transfer, discloses a method comprising the steps of:

- (1) Providing a transfer sheet comprising, in order, a support sheet (backing layer), a transfer resin layer (varnish layer) that cures under the effect of radiation, and a design (decoration) layer (column 7, lines 22-40);
- (2) Bringing the transfer sheet into contact with an article to be decorated (column 9, lines 3-30);
- (3) Applying localized pressure and heat to the carrier sheet to transfer a localized portion of the resin and design layer to the article (column 9, lines 31-42);
- (4) Removing the carrier sheet (column 14, lines 45-47); and

(5) Causing the resin layer that has been transferred to the article to harden (cure) by exposing it to radiation to thereby produce, an article having a decoration applied thereto (column 14, lines 48-55).

As per applicant claims 1, 4, 26 and 29, Reed et al. disclose that the transfer layer comprises a UV or thermally curable hydroxylated urethane acrylate such as acrylated polyurethane (column 6, lines 5-12; column 14, line 20).

As per applicant claims 5, 30, 46 and 47, Reed et al. disclose that the transfer layer includes acrylated polyurethane, a low molecular-weight prepolymer oligomer (column 14, line 21).

As per applicant claim 7 and 32, Reed et al. disclose that the transfer layer may include pigments (column 14, lines 40-44).

As per applicant claims 8 and 33, Reed et al. disclose that the transfer layer includes photo-initiators at a concentration of 2.47 wt% (column 14, lines 22-24).

As per applicant claims 13 and 38, Reed et al. disclose that the design layer is a layer of ink deposited by printing onto the transfer layer prior to the exposure of the transfer layer to UV curing (column 7, lines 28-51).

Given the disclosure of Reed et al. it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the specific UV curable resin materials set forth in applicant claims 2, 4, 5, 7, 8, 27, 29, 30, 32 and 33, and disclosed by Reed et al., in the method of Doi et al. motivated by the fact that the skilled artisan would have appreciated their applicability given the fact that both Doi et al. and Reed et al. are both drawn to methods for the thermal transfer decoration of substrate utilizing a a transfer sheet having a transferable outer protective layer which may be UV cured after transfer to provide a rugged and durable decoration.

It also would have been obvious to one of ordinary skill in the art at the time of invention, as per applicant claims 13 and 38, to substitute the metallic decorative layer of Doi et al. with the printed in decoration layer of Reed et al. motivated by the fact that such a substitution would enable increase the decorative and aesthetic possibilities of the Doi et a. methodology.

Although Reed et al. disclose that the transfer layer includes photo-initiators at a concentration of 2.47 wt%, they do not specifically disclose, as per applicant claims 21 and 39, that the photo-initiators are present at a concentration by weight of about 0.5%.

Nonetheless, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize any effective amount of photo-initiator in compounding the transfer layer of Reed et al., for use in the method of Doi et al., motivated by the fact that the claimed amount of photo-initiator would have been the result of routine experimentation by one of ordinary skill in the art taking into consideration the polymers utilized and the method and means of UV exposure, etc.

Regarding applicant claims 6 and 31, Doi et al. disclose that the protective resin layer applied to the release sheet contains MEK, a solvent.

Regarding applicant claims 9 and 34, Doi et al. disclose that the release sheet comprises a polyester film.

Regarding applicant claims 10 and 35, Doi et al. disclose that the decorative layer is covered by a layer of heat activated (hot-melt) adhesive.

Regarding applicant claim 24, Doi et al. disclose that the transferred layers remain coherent as a rugged surface.

Regarding applicant claim 25 and 41, Doi et al. disclose that the substrate may comprise a resin, i.e., a plastic article.

Regarding applicant claims 12, 37, 56 and 57, Doi et al. disclose, as per applicant claims 12 and 37, that the transfer sheet may include a thin layer of metal applied via vacuum to the protective (varnish) layer prior to the steps of transfer and full UV cure ("Effects of the Invention" section). Although Doi et al. disclose in their example that the protective layer undergoes a partial half-cure via UV radiation prior to metallization, it would have been obvious to one of ordinary skill in the art at the time of invention, as per applicant claims 56 and 57, that the protective resin layer of Doi et al. could be vacuum metallized without the exemplified UV half-curing step motivated by the fact that Doi et al. also disclose that the protective layer, after coating and drying (but before half or full cure) is solid in its uncured state ("Protecting Layer" section)

(3)

Claims 3 and 28 rejected under 35 U.S.C. 103(a) as being unpatentable over the references as combined in section (2), above, in further view of U.S. Patent No. 5,581,978 to Hekal et al..

Although Reed et al., as combined in section (2), above, disclose that the transfer layer comprises a UV or thermally curable hydroxylated urethane acrylate such as acrylated polyurethane, they do not specifically disclose, as per applicant claims 3 and 28, that the UV or thermally curable resin is based on a cationic system.

Hekal et al., also drawn to UV curable coatings, disclose that materials which work well for UV curable overcoatings include acrylated urethane, two part epoxy and urethane systems, and cationic systems (column 5, lines 13-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute a UV curable cationic resin for the acrylated polyurethane disclosed by Reed et al., for use in the method of Doi et al., motivated by the fact such compositions are interchangeable function expedients as suggested by Hekal et al.

(4)

Claims 22 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as combined in section (2), above, in further view of U.S. Patent No. 4,133,723 to Howard et al.

Although Reed et al., as combined in section (2), above, disclose that the transfer layer comprises a low molecular weight oligomer such as UV or thermally curable acrylated polyurethane, they do not specifically disclose, as per applicant claims 22 and 40, that the molecular weights lie in a range from 800 to about 2000.

It would have been obvious to one of ordinary skill in the art at the time of invention to utilize a low molecular weight oligomer such as an acrylated polyurethane having a molecular weight within the claimed range motivated by the fact that Howard, also drawn to radiation curable coatings, discloses that acrylated urethane oligomers having molecular weights ranging from 410 to 1000 (Table I) are useful in forming radiation curable coatings (abstract).

(5)

Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable the references as combined in section (2), above, in further view of U.S. Patent No. 5,391,247 to Kamen et al. and U.S. Patent No. 1,124,869 to Davis et al.

Doi et al., as combined in section (2), above, disclose that the transfer is accomplished by the application of pressure and heat with a heated roller thereby activating the heat activated adhesive layer to bond the decorative and protective resin layers to the target substrate.

Davis et al., also drawn to methods for the hot- marking of substrates with a heat-transfer film, disclose that a pattern of decorative material (gold leaf) may be transferred to a substrate through the use of a relief-patterned gilding iron, (Figures 1 and 3; page 1, column 1, line 32 to column 2, line 90).

It would have therefore been obvious to one of ordinary skill in the art at the time of invention to utilize a relief-patterned gilding iron (a stamp), such as that taught by Davis et al., in place of the heated roller of Doi et al. motivated by the fact that Kamen et al., also drawn to methods for the hot- marking of substrates with a heat-transfer films, disclose that the transfer film may be compressed against the substrate by means of a stamp, roller or any other suitable instrument known in the art for this purpose (column 3, lines 6-9).

(6)

Allowable Subject Matter

Claims 44 and 45 have been found to be allowable over the prior art of record.

Claims 11 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Although the primary reference to Doi et al. disclose that the varnish (protective) layer is exposed to UV radiation after thermal transfer, neither they nor any of the prior art of record specifically teach or suggests the method set forth in applicant claims 11, 36, 44 and 45 wherein the varnish is exposed to radiation while the temperature thereof is still close to the maximum temperature at the moment when pressure and heat are applied to the backing layer, the temperature difference being less than 30% of the maximum temperature.

(7)

Response to Amendments and Arguments

The amendments and arguments filed June 4, 2004 are acknowledged. A Request for Continued Examination (RCE) was filed on June 8, 2004. In response, the Examiner issued a

requirement for restriction on September 21, 2004. On October 15, 2004 the Applicant made an election with traverse of claims 1, 3-13, 21, 22, 24-26, 28-43, 56 and 57 (Species A) arguing that newly added claims 44-55 (encompassing Species B-D) should be not be restricted therefrom. The traversal was on the ground(s) that the subject matter of Species B (claims 44 and 45), C (claims 46 and 47) and D (claims 48-55) is also included in the elected claims of Species A. The Examiner agreed in part and Species B and C have been rejoined with the claims of Species A for examination. Species D, however, remain restricted and withdrawn from examination.

Applicant's arguments filed June 4, 2004 have been fully considered but they are not persuasive.¹ The Applicant's main arguments are drawn against the combination of the Doi et al. and Reed et al. references and allege that the references are drawn to distinctly different methods and materials and one of ordinary skill in the art would have found no motivation in either reference to have combined the references in the manner set forth in the Office Action. The Examiner respectfully disagrees. Firstly, both Doi et al. and Reed et al. are both drawn to methods for the formation and transfer of image/decorative layers from a release carrier to a final target substrate wherein the durability of the transferred design is increased through the use of a radiation-curable resin layer which is cured after the design layers have been transferred to the target substrate. Secondly, the Examiner respectfully submits that given analogous nature of the methodologies taught by the references, and based upon the motivational explanations provided by the Examiner, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the UV thermal varnish disclosed by Reed et al. in the overall method of Doi et al. Thirdly, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Finally, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the UV thermal varnish is a varnish which can be preliminarily crosslinked by heat while sustaining the photoinitiators for

¹ It is noted that the Applicant's arguments with regards to Doi et al. alone and in combination with Vilaprinio Oliva have been rendered moot given the new grounds of rejection set forth above.

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subsequent final curing by UV exposure) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As such, the Examiner respectfully submits that the rejection set forth in section (2), above, is proper.

The Applicant also argues that the combination of the Hekal et al.; Howard; Kamen and Davis references, as set forth in sections (3) through (5), above, are improper as being based on hindsight reasoning and fail to remedy the deficiencies of the primary reference to Doi et al.

In response to applicant's argument that the examiner's conclusion of obviousness (in the case of the Hekal et al. and Howard references) is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In the instant case, only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made has been used in forming a proper prima facie case of obviousness. As set forth in section (3), above:

Hekal et al., also drawn to UV curable coatings, disclose that materials which work well for UV curable overcoatings include acrylated urethane, two part epoxy and urethane systems, and cationic systems (column 5, lines 13-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute a UV curable cationic resin for the acrylated polyurethane disclosed by Reed et al., for use in the method of Doi et al., motivated by the fact such compositions are interchangeable function expedients as suggested by Hekal et al.

With regards to the application of the Howard reference, the Examiner concluded that:

It would have been obvious to one of ordinary skill in the art at the time of invention to utilize a low molecular weight oligomer such as an acrylated polyurethane having a molecular weight within the claimed range motivated by the fact that Howard, also drawn to radiation curable coatings, discloses that

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acrylated urethane oligomers having molecular weights ranging from 410 to 1000 (Table I) are useful in forming radiation curable coatings (abstract).

As such, the Examiner respectfully submits that the rejections based on the combination of the Doi et al. and Reed et al. references with those of Hekal et al. and Howard, respectively and as set forth in sections (3) and (4), above, are proper.

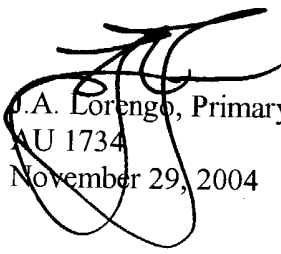
Finally, the Examiner respectfully submits that since the Examiner has discounted the alleged deficiencies of the Doi et al. references, there exist no deficiencies for the Kamen and Davis references to remedy. As such, the Examiner respectfully submits that the rejection based on the Kamen and Davis references, as set forth in section (5), above, is proper.

(8)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry A. Lorengo whose telephone number is (571) 272-1233. The examiner can normally be reached on Monday through Friday, 8:30 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J.A. Lorengo, Primary Examiner

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November 29, 2004